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Radio Frequency Identification (RFID) For Department of Defense Suppliers

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Outline

- The Basics
- Tag Construction
- Data Flow and Wide Area Work Flow
- Requirements
- RFID Solutions
- Conclusion

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RFID – The Basics

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What is RFID?

- RFID = Radio Frequency Identification
- RFID technology is a means of identifying a unique object or a person using a radio frequency transmission
- RFID tags can be programmed to receive, store and transmit information such as serial numbers, place of assembly or personal information such as healthcare records

Why RFID?

- Department of Defense (DoD) supply chain management
  - Give war fighters greater visibility and confidence in the supply chain
  - Improve process efficiency of shipping, receiving, and inventory management
  - Decrease order ship time and customer wait time

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Implementation

- Began January 1, 2005
  - DoD primes are required to use RFID
  - DoD primes may require subcontractors to use RFID
- Additional Requirements
  - January 2006
  - January 2007

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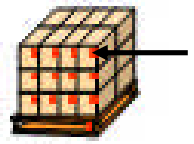
DoD's RFID Site

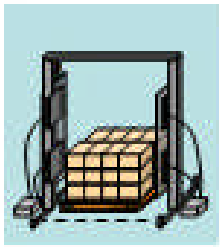
- http://www.dodrfid.org
  - Information on policy, implementation, and specification requirements
  - Review Frequently Asked Questions (FAQs)
  - Submit a question to: info@dodrfid.org

RFID System Basics

- RFID Systems have three main components
  - Tag
    - Carries the data in the form of a radio frequency signal
  - Reader (fixed or portable)
    - Notifies or energizes the tag to “wake it up”
    - Reads the radio frequency signal and transmits it to a computer data system
  - Computer data system
    - Receives data from reader

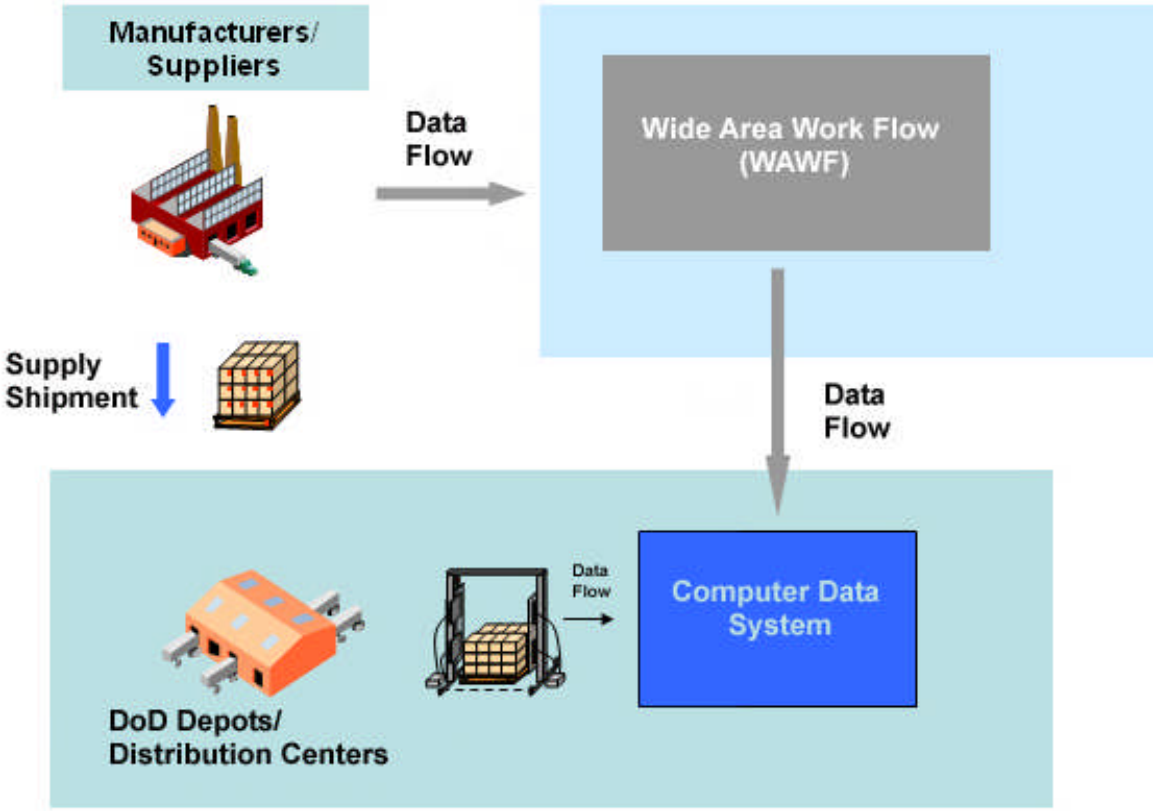


Tag



Reader (fixed)

RFID System Basics (Cont.)



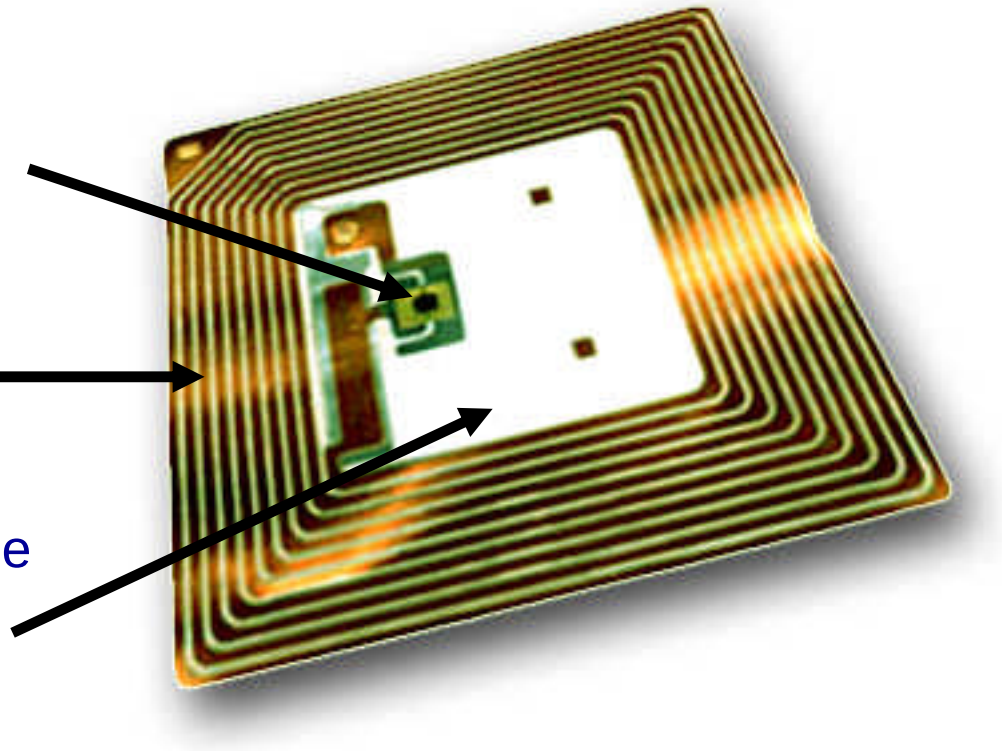
RFID Tag

Three Parts

1 – The **chip** holds information about the physical object to which the tag is attached

2 – The **antenna** transmits and/or receives information using radio waves

3 – The **packaging** encases the chip and antenna so the tag can be attached to the physical object



Types of Tags

- Active Tag (range is 300 ft or less)
- Passive (range is up to 20 ft)
- Semi-Passive / Semi-Active Tags

Active Tag

- Battery provides power for the tag to send a very strong response back to the reader
- Larger, more expensive and holds more data than passive tags
- Used primarily for transportation systems (rail, toll systems, trucking, ocean containers)

Passive Tag

- No battery
- Sends radio frequency signal after receiving a signal to “wake up” by a reader
- Smaller, cheaper and holds less data than an active tag
- Used in retail systems and transportation systems

Semi-Passive / Semi-Active Tags

- Cross between active and passive tags
- Uses passive technology
- Small battery gives it greater range than passive tags
- Holds more data and are more expensive than passive tags

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RFID Standardization

- EPCGlobal, a non-profit, is joint venture between European Article Numbering International (EAN) and Uniform Code Council (UCC) (GS1)
  - Leading an effort to create global standards for RFID use
  - Standards are accepted by DoD
  - For more information: http://www.epcglobalinc.org
  - To find companies that manufacture readers: www.epcglobalinc.org/interoperability/

Tag Standards*

- Passive RFID Tag Types
  - Read Only (Class 0)
    - Information is programmed at the manufacturer and can be read with an RFID reader
  - Read/Write (Class 1)
    - Can be written outside of the manufacturer's facility
    - Information can be read with an RFID reader
    - Information can also be written to the tag with an RFID reader or printer

* As defined by EPCGlobal

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Goodbye Bar Codes? – No!

- Traditional bar codes will remain the dominant Auto Identification Technology (AIT) for more mainstream applications
- 2D bar codes are being adopted for value added applications
- RFID will be increasingly adopted where non-line of sight, read/write and multiple detection requirements are needed

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RFID Applications

- Highway Toll Collection – “FastTrack”
- Vehicle Immobilizers – “LoJack”
- Sports Timing
- Parcel Logistics
- Airline Bag Tracking
- Library Systems
- Warehouse Management
- Electronic Article Surveillance

RFID – How Are Tags Constructed?

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Tag Data Construction – Uniqueness

Header	Filter	CAGE Code	Serial Number
Identifies the tag number as being constructed in DoD's format	Tag is identified as a case, pallet or Unique Identification (UID) item	Unique number assigned to suppliers by Defense Logistics Information System (DLIS)	Managed by the supplier and ensures uniqueness within a Commercial and Government Entity (CAGE) code

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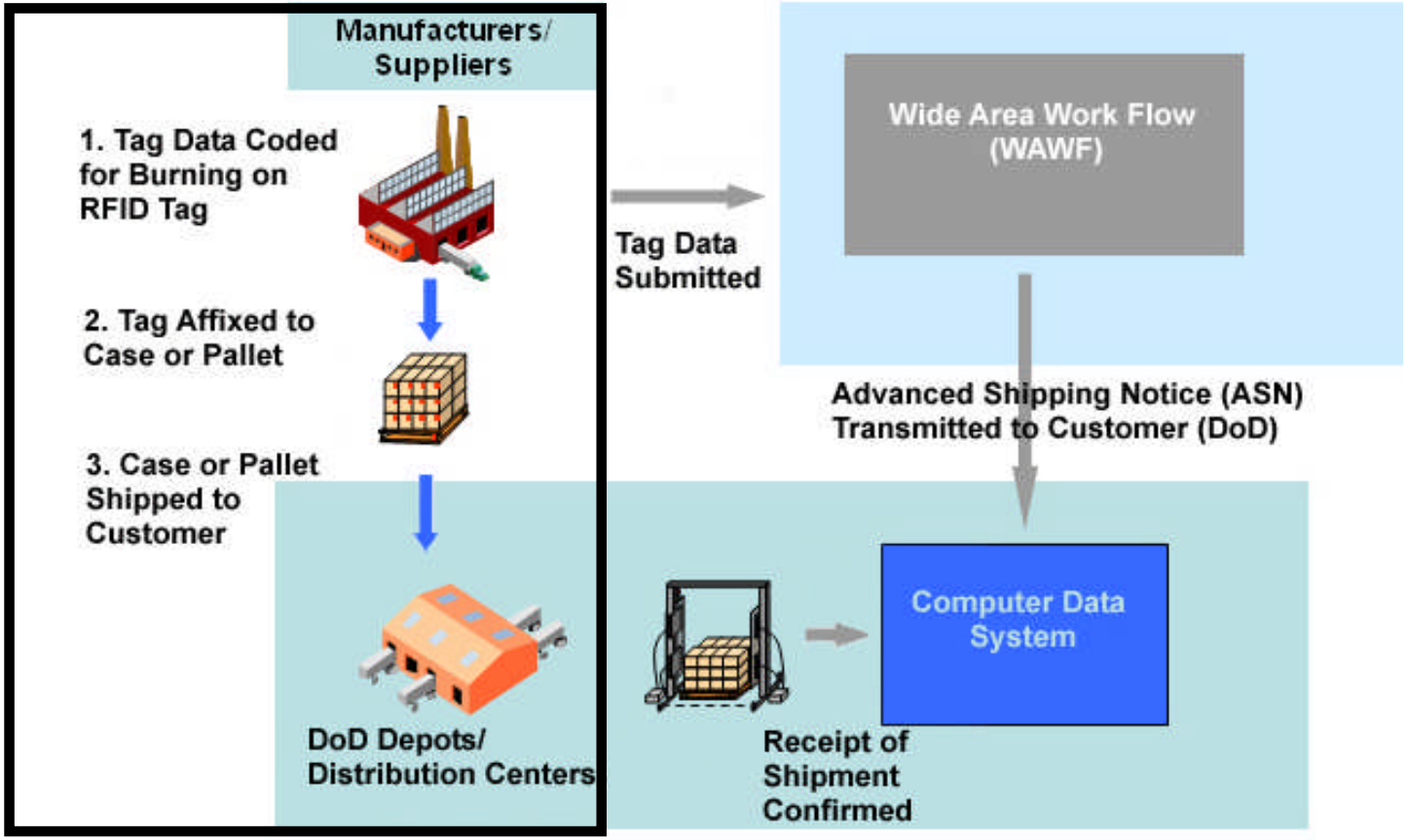
RFID Tag in Shipping Label

RFID Tag Data



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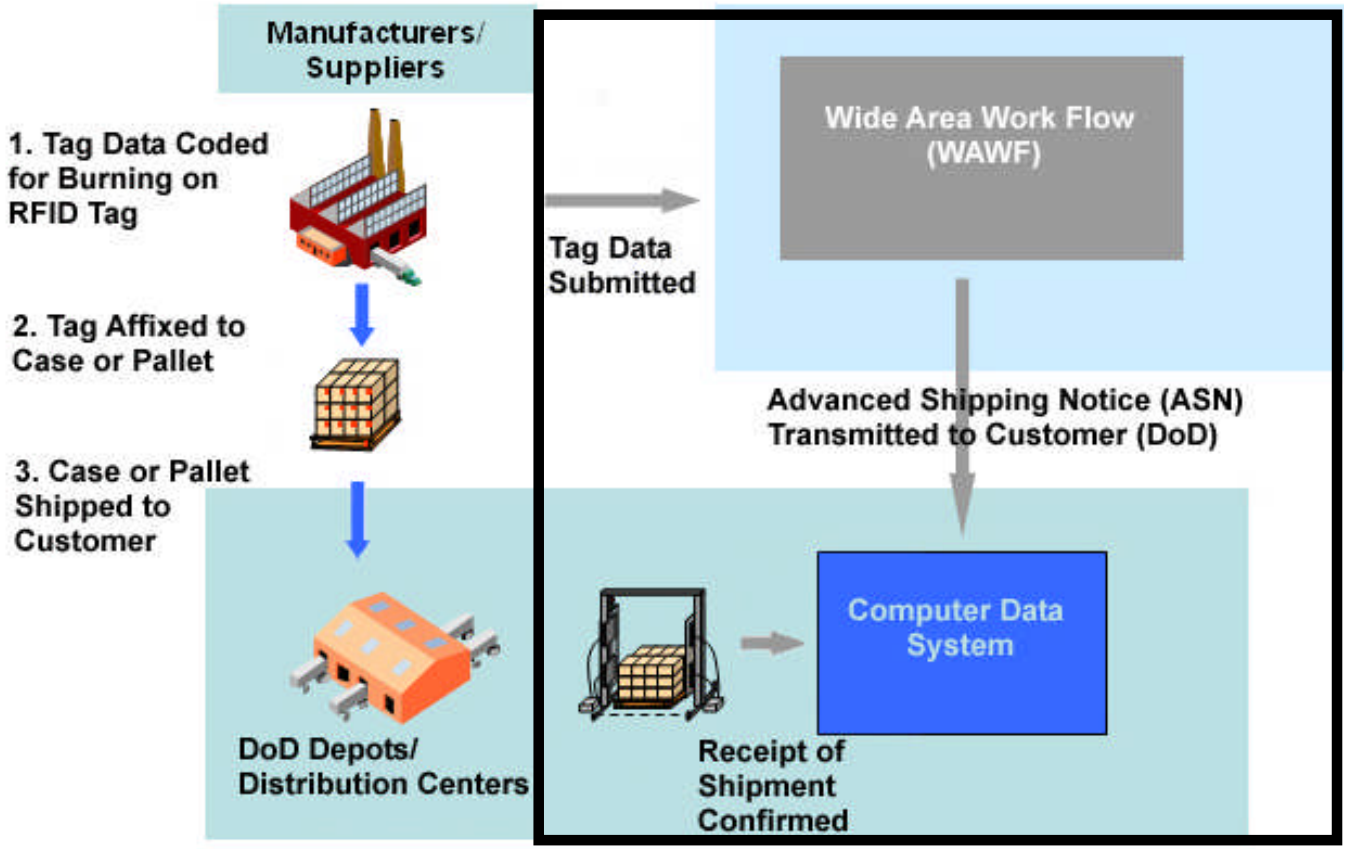
RFID – Data Flow and Wide Area Work Flow

Wide Area Work Flow (WAWF)

- Applies to vendors providing services and/or products to DoD
  - Creates invoices and Receiving Reports
  - Electronically routes Receiving Reports to DoD agencies
  - Monitors status of documents as processed by DoD agencies
  - Accesses documents and ONLY corrects the required data
  - *Requires Registration in Central Contractor Registration (CCR)* www.ccr.gov

RFID Data Flow



Procedures for submitting ASN through WAWF defined at http://www.dodrfid.org/asn.htm

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Useful WAWF Websites

- WAWF Web-Based Training
  - http://www.wawftraining.com
- WAWF Practice/Hands-on Site
  - https:wawftraining.eb.mil
- WAWF Production Site
  - https://wawf.eb.mil

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RFID – What is Required?

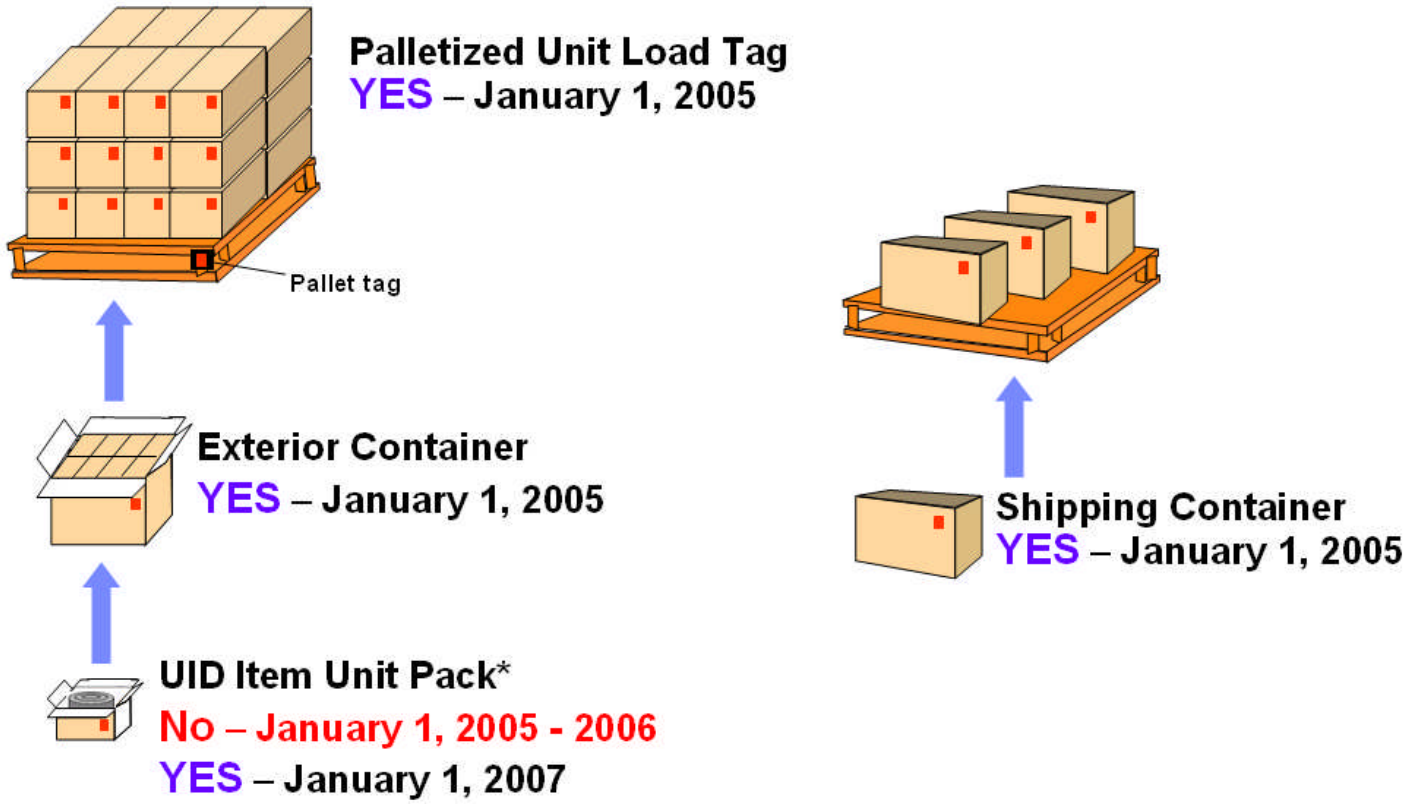
Contractual Requirements

- Two Major Requirements for Suppliers
  - Passive tagging at the case and pallet level in accordance with the DoD's RFID Implementation Plan (see RFID website)
  - Advance Shipping Notice (ASN) through WAWF

Contractual Requirements (Cont.)

- Specific Requirements
  - Data encoded on tag must be **unique**
  - Passive tag is **readable** at time of shipment in accordance with MIL-STD 129P requirements
  - Passive tag is **affixed at the appropriate location** on the specified level of packing in accordance with MIL-STD 129P requirements
  - Contractor shall use a **tag construct** in accordance with the details located at http://www.dodrfid.org/tagdata.htm
  - Contractor shall electronically submit an **Advance Shipment Notice (ASN)** in accordance with procedures at http://www.dodrfid.org/asn.htm

Tagging and Label Placement



*If UID Packaging is also an External Container or Shipping Container, it will have an RFID tag.

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When is RFID required?

As of January 1, 2005

- Tags required on shipping containers, palletized unit loads, exterior containers
- Ship to locations
  - San Joaquin or Susquehanna Defense Distribution Centers
- Classes of Supply
  - Class I Subclass – Packaged Operations Rations and Packaged Food (MREs)
  - Class II – Clothing, Individual Equipment, Tools & Administrative Supplies
  - Class VI – Personal Demand Items (toiletries, cigarettes)
  - Class IX – Repair Parts & Components

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When is RFID required? (Cont.)

Now - As of January 1, 2006

- Tags required on shipping containers, palletized unit loads, exterior containers
- Ship to locations
  - CONUS DLA Depots, TRANSCOM Facilities & Service Maintenance Facilities
  - For a complete list: http://www.dodrfid.org/supplierimplementationplan.htm
- Classes of Supply
  - Class I – Subsistence & Gratuitous Health & Comfort Items
  - Class III – Packaged Petroleum, Lubricants, Oils, Preservatives, Chemicals & Additives
  - Class IV – Construction & Barrier Equipment
  - Class V – Ammunition of all Types
  - Class VII – Major End Items
  - Class VIII – Medical Materials (includes Pharmaceuticals)

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When is RFID required? (Cont.)

As of January 1, 2007

- Tags required on shipping containers, palletized unit loads, exterior containers and unit packs for “Unique Identification” (UID) Items
- Ship to locations
  - All
- Classes of Supply
  - All

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RFID Solutions

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What RFID Solution is Right for Me?

- Considerations
  - Consider your customer base
  - Identify the uses for RFID
  - Consider the values of an RFID system
  - Identify performance characteristics
  - Determine if a dual system is needed

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RFID Solutions - Examples

- Option 1 – DoD Vendor does very little business with DoD
  - Least $ Investment
    - Outsource Requirement to Packing House
      - Can find RFID contractors under CCR Dynamic Small Business Search – Select California and type in “RFID” in key word search
      - Can find packaging contractors under CCR Dynamic Small Business Search – Select California and type in “packaging” in key word search

RFID Solutions – Examples (Cont.)

- Option 2 – DoD Vendor does very little business with DoD
  - Very Small $ Investment
    - Use existing
      - IT Resources and Internet Connectivity
    - Purchase
      - Pre-coded tags
  - Process
    - Affix pre-coded tag to products at case/pallet level
    - Manually enter tag ID into computer for ASN
    - ASN sent through WAWF

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RFID Solutions – Examples (Cont.)

- Option 3 – DoD Vendor does more business with DoD
  - Small $ Investment
    - Use existing
      - IT Resources and Internet Connectivity
    - Purchase
      - Pre-coded tags
      - Reader and Reader Software
  - Process
    - Verify tag ID with reader
    - Affix pre-coded tag to products at case/pallet level
    - Reader inputs tag ID into computer system for ASN
    - ASN sent through WAWF

RFID Solutions – Examples (Cont.)

- Option 4 – Vendor does substantial business with DoD
  - Higher $ Investment
    - Use existing
      - IT Resources and Internet Connectivity
    - Purchase
      - Blank tags
      - More robust Reader and Reader Software
  - Process
    - Write tag ID with reader
    - Affix tag to products at case/pallet level
    - Reader inputs tag ID into computer system for ASN
    - ASN sent through WAWF

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Conclusion

- RFID is here to stay!
- If you ship or deliver products to DoD, you will need to decide on your RFID strategy
- The FTC is here to help

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Questions or Comments?

www.TheFTC.org